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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|-------------------------|------------------|
| 09/902,160 | 07/11/2001 | Cecil William Farrow | Farrow 39 | 8786 |
| 7590 | 11/18/2004 | | EXAMINER | |
| John E. Curtin, Esq. Troutman Sanders Mays & Valentine, L.L.P. Suite 600 1660 International Drive McLean, VA 22102 | | | HA, DAC V | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2634 | |
| | | | DATE MAILED: 11/18/2004 | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|-----------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/902,160 | FARROW, CECIL WILLIAM | |
| | Examiner | Art Unit | |
| | Dac V. Ha | 2634 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 11 July 2001.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-17 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-17 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-7, 10-16** are rejected under 35 U.S.C. 102(b) as being anticipated by Hirano (US 5,608,804).

Regarding claim 1, Hirano discloses the claimed subject matter “a smoothing filter for receiving a tap coefficient error estimate of a data stream and for generating a smoothed error from the estimate; and a tracking unit for generating a fractional error from the smoothed error” in Fig. 8, 10, 11; col. 12, line 53 to col. 13, line 9; col. 13, line 45 to col. 14, line 14, in that, the error signal is “smoothed”, scaled and then utilized for updating the coefficients of the adaptive filter.

Regarding claim 10, see apparatus claim 1.

Regarding claim 2, Hirano further discloses the claimed subject matter “wherein the tracking generator further generates a reduced error by subtracting the fractional error from a stored smoothed error” in Fig. 11, elements 405, 408.

Regarding claim 11, see apparatus claim 2.

Regarding claim 3, Hirano inherently discloses the claimed subject matter “wherein the tracking generator further generates a fraction of the reduced error” in the scaling process.

Regarding claim 13, see apparatus claim 3.

Regarding claim 4, Hirano further discloses the claimed subject matter "wherein the tracking generator further generates the smoothed error from the tap coefficient error estimate and a smoothing factor" in Fig. 11.

Regarding claim 5, Hirano further discloses the claimed subject matter "a coefficient generator for generating tap coefficients based on the fractional error." in Fig. 7 and Fig. 17, element 347.

Regarding claim 14, see apparatus claim 5.

Regarding claim 6, Hirano further discloses the claimed subject matter "further comprising an output unit for generating a converged output signal" in Fig. 8, element 5.

Regarding claim 15, see apparatus claim 6.

Regarding claim 7, Hirano further discloses the claimed subject matter "wherein the tracking generator further generates the fractional error based on the smoothed error and a coefficient adjustment factor" in Fig. 8, 10, 11; col. 12, line 53 to col. 13, line 9; col. 13, line 45 to col. 14, line 14.

Regarding claim 16, see apparatus claim 7.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 8-9, 17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirano.

Regarding claims 8-9, 17, these claimed subject matter are rather design specific, therefore, would have been obvious to one skilled in the art.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sommer et al. (US 6,366,613) disclose High Stability Fast Tracking Adaptive Equalizer For Use With Time Varying Communication Channels.

Ohashi (US 5,668,747) discloses Coefficient Updating Method For An Adaptive Filter.

Fujii et al. (US 5,790,440) disclose Apparatus For Estimation Filter Coefficients.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dac V. Ha whose telephone number is 571-273-3040. The examiner can normally be reached on 5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.
For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dac V. Ha
Examiner
Art Unit 2634